

CLAIMS

1. A method of measuring the height of a liquid using a high-frequency line probe (1), characterized in that it consists in making, on an electric circuit (3), powered with high-frequency alternating current, a comparison between the impedance of a coaxial or non-coaxial line probe (1) and a reference resistor (17), using a resistive measuring bridge (7), the probe (1) submerged in a tank of fluid of which the height is to be determined forming one measuring arm of the measuring bridge and said reference resistor (17) forming an opposite arm of the measuring bridge, the comparison signal resulting from the alternate measurement of the signal on each of the arms using a suitable detector, and in processing the comparison signal in order to obtain the calculation of the height of the liquid according to its permittivity, the length of the probe (1) and the circuit (3) power supply frequency.

2. The measuring method as claimed in claim 1, characterized in that the probe (1) is formed by a simple tube or rod or metallic wire of any type and of straight-line shape, extending over the height of liquid in the tank to be measured.

3. The measuring method as claimed in claim 2, characterized in that the length of the probe (1) is variable from 0.1 to 10 m.

4. The measuring method as claimed in one of the preceding claims, characterized in that the power supply frequency domain of the circuit (3) of the probe (1) is variable from 4 to 20 Hz.

5. The measuring method as claimed in one of the preceding claims, characterized in that the reference resistor (17) is chosen to be roughly equal to that of the impedance modulus of the probe (1) at mid-height of the liquid in the tank.

6. The measuring method as claimed in one of the preceding claims, characterized in that the processing of the comparison signal is performed in two stages, a logarithmic amplifier stage (9) followed by a terminal differential amplifier stage (11).

7. The measuring method as claimed in one of the preceding claims, characterized in that it comprises a double synchronous switching (13), on the one hand, between the input (13a) of the logarithmic amplifier stage (9) and, on the other hand, between the output of the latter (13b) and the differential amplifier stage (11), so as to use only a single logarithmic amplifier (9) for the first processing stage of the circuit.

8. The measuring method as claimed in claim 7, characterized in that the alternating current measuring signals processed by the logarithmic amplifier (9) are received alternately via said synchronous switching on a capacitive circuit (15) with opposite branches (15a, 15b) at the input of the terminal differential

amplifier stage (11), to be picked up and processed by the latter.

9. The measuring method as claimed in either of claims 7 and 8, characterized in that said double synchronous switching (13) is controlled by a square signal pulse generator (19).

10. A probe used for measuring the height of liquids, in particular hydrocarbons in tanks, characterized in that it comprises an assembly of an open-ended, high-frequency line (1) submerged in the liquid over the height to be measured, and a circuit (3) with measuring bridge (7) and logarithmic (9) and differential (11) amplifier stages for the processed line impedance signal.